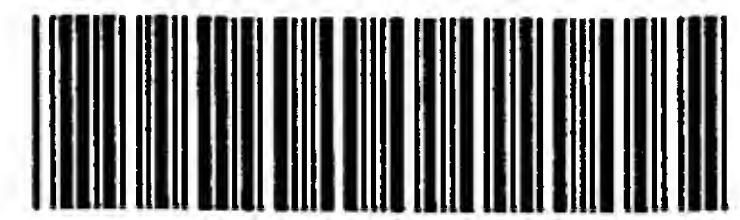# RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: _____ 10/569,959 _____

Source: _____ IFWO _____

Date Processed by STIC: _____ 11/30/2006 _____

ENTERED

RAW SEQUENCE LISTING DATE: 11/30/2006
PATENT APPLICATION: US/10/569,959 TIME: 13:29:16

Input Set : **N:\efs\11_30_06\10569959_efs\pto.da.txt**
Output Set: **N:\CRF4\11302006\J569959.raw**

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     3 <110> APPLICANT: Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo
     5 <120> TITLE OF INVENTION: Cyclic maltosylmaltose, cyclic maltosylmaltose-forming
enzyme, their
     6       preparation and uses
     8 <130> FILE REFERENCE: 10102802
C--> 10 <140> CURRENT APPLICATION NUMBER: US/10/569,959
C--> 10 <141> CURRENT FILING DATE: 2006-02-28
    10 <160> NUMBER OF SEQ ID NOS: 10
    12 <210> SEQ ID NO: 1
    13 <211> LENGTH: 5
    14 <212> TYPE: PRT
    15 <213> ORGANISM: Arthrobacter globiformis
    17 <400> SEQUENCE: 1
    18 Asp Pro Thr Thr Ser
    19 1               5
    21 <210> SEQ ID NO: 2
    22 <211> LENGTH: 583
    23 <212> TYPE: PRT
    24 <213> ORGANISM: Arthrobacter globiformis
    26 <400> SEQUENCE: 2
    27 Asp Pro Thr Thr Ser Pro Gly Pro Leu Ala Glu Gly Asp Val Ile Tyr
    28 1               5                   10                  15
    29 Gln Val Leu Val Asp Arg Phe Glu Asp Gly Asp Pro Thr Asn Asn Asp
    30              20                  25                  30
    31 Gln Gly Asp Gly Glu Tyr Asp Pro Ser Asp Leu Gly Phe Tyr His Gly
    32          35                  40                  45
    33 Gly Asp Trp Ala Gly Leu Thr Asp Arg Leu Asp Tyr Ile Ala Asp Leu
    34      50                  55                  60
    35 Gly Val Thr Ala Ile Trp Leu Ser Pro Val Ser Glu Gln Gln Pro Leu
    36 65                  70                  75                  80
    37 Ser Arg Asp Gly Leu Glu Ala Ser Tyr His Gly Tyr Phe Thr Arg Asp
    38                  85                  90                  95
    39 Phe Ala Thr Pro Asn Glu His Phe Gly Asp Arg Ala Glu Leu Gln Glu
    40              100                 105                 110
    41 Leu Ile Asp Thr Ala His Asp Leu Gly Leu Lys Met Ile Leu Asp Val
    42              115                 120                 125
    43 Val Pro Asn His Thr Ala Asp Tyr Leu Ala Gly Thr Ser Thr Thr Tyr
    44      130                 135                 140
    45 Ser Pro Ser Thr Tyr Lys Pro Ala Ser Pro Leu Asp Asp Ala Ser Tyr
    46 145                 150                 155                 160
    47 Phe His His Ala Gly Asp Cys Leu Phe Asn Gly Leu Glu Thr Gln Thr
    48                  165                 170                 175
    49 Gln Ile Glu Asn Cys Asp Leu Gly Gly Leu Asp Asp Leu Asp Gln Ser
    50                  180                 185                 190
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RAW SEQUENCE LISTING   DATE: 11/30/2006
PATENT APPLICATION: US/10/569,959   TIME: 13:29:16

Input Set : N:\efs\11_30_06\10569959_efs\pto.da.txt
Output Set: N:\CRF4\11302006\J569959.raw

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51 Asn Pro Val Val Ser Ser His Leu Met Ser Thr Tyr Lys Asp Trp Val
52         195             200             205
53 Asp Met Gly Phe Asp Gly Ile Arg Val Asp Ala Ala Arg Ser Val Pro
54         210             215             220
55 Lys Pro Trp Leu Ala Asp Phe Glu Ala Glu Met Gly Val Pro Thr Phe
56 225             230             235             240
57 Gly Glu Val Phe Val Gly Asp Val Asp Tyr Val Ser Glu Tyr Gln Asp
58                 245             250             255
59 Tyr Glu Trp Gly Val Leu Asp Phe Pro Tyr Phe Phe Thr Val Arg Glu
60         260             265             270
61 Ala Phe Ser Ala Asp Thr Asp Met Asn Lys Leu Gly Asp Leu Phe Asp
62         275             280             285
63 Gln Asp Ser Lys Tyr Ala Asn Pro Asn Arg Leu Glu Thr Phe Leu Asp
64         290             295             300
65 Asn His Asp Arg Ala Arg Phe Leu Thr Trp Ala Asp Asp Asn Tyr Gln
66 305             310             315             320
67 Arg Leu Arg Ser Gly Leu Thr Phe Leu Leu Thr Ser Arg Gly Val Pro
68         325             330             335
69 Val Ile Tyr Tyr Gly Thr Glu Gln Ala Asp Asp Gly Asn Gly Asn Pro
-70         340             345             350
71 Tyr Glu Val Pro Ile Ala Asn Lys Asp Asn Arg Lys Asp Met Glu Ser
72         355             360             365
73 Phe Asp Gln Asn Ser Asn Leu Tyr Lys His Ile Gln Arg Leu Thr Ala
74         370             375             380
75 Ile Lys Ala Ala Tyr Pro Ala Leu Gln Val Gly Thr Gln Arg Glu Met
76 385             390             395             400
77 Trp Ser Asp Thr Ser Val Tyr Gly Phe Ser Arg Arg Val Asp Ser Thr
78                 405             410             415
79 Gly Ala Glu Ala Met Thr Phe Ser Ser Asn Ser Trp Thr Thr Gln Thr
80         420             425             430
81 Arg Thr Val Pro Leu Arg Ala Glu Ser Ser Ile Thr Val Gly Thr Thr
82         435             440             445
83 Leu Thr Asn Leu Met Asn Thr Gly Asp Thr Val Thr Val Thr Ala Gly
84         450             455             460
85 Gly Val Thr Gly Lys Gln Ile Thr Val Ser Leu Gly Glu His Glu Ser
86 465             470             475             480
87 Lys Val Tyr Ala Pro Gly Thr Pro Val Ser Ala Tyr Ser Pro Glu Ala
88                 485             490             495
89 Arg Asn Thr Thr Lys Ile Arg Val His Tyr Asn Val Gly Leu Gly His
90         500             505             510
91 Ser Ile Ala Ile Arg Gly Asp Glu Tyr Pro Phe Thr Trp Thr Ser Gly
92         515             520             525
93 Arg Gly Ala Arg Asn Val Ala Ser Asp Val Trp Glu Phe Glu Val Glu
94         530             535             540
95 Arg Ile Pro Asp Gly Glu Thr Phe Gln Phe Lys Pro Leu Ile Asp Asp
96 545             550             555             560
97 Val Thr Trp Ser Thr Gly Gly Asn Phe Thr Gly Thr Gly Gly Asp Val
98                 565             570             575
99 Ile Asp Ile Tyr Pro Thr Phe
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100              580            583
102 <210> SEQ ID NO: 3
103 <211> LENGTH: 1749
104 <212> TYPE: DNA
105 <213> ORGANISM: Arthrobacter globiformis
107 <400> SEQUENCE: 3
108 gaccccacca cgtcgcccgg cccgctggcc gagggcgacg tgatctacca ggtgctcgtc     60
109 gaccggttcg aagacggcga ccccaccaac aacgaccagg gcgacggaga gtacgatccg    120
110 tccgacctcg gtttctacca cggcggcgac tgggcgggcc tgacggaccg gctcgactac    180
111 atcgccgatc tgggtgtgac ggcgatctgg ctctcgcccg tctccgagca gcagccgctc    240
112 tcgcgcgacg ggctggaggc cagctaccac ggctacttca ctcgggactt cgcgacgccg    300
113 aacgagcatt tcggcgaccg agccgagctg caggagctga tcgacacggc gcacgatctc    360
114 ggactcaaga tgatcctcga cgtcgtgccg aaccacacgg ccgactacct cgcgggcaca    420
115 tcgacgacct attcgccgag cacctacaag ccggcgagtc cgctcgatga cgcgtcgtac    480
116 ttccatcacg ccggcgactg cctgttcaac gggctcgaga cgcagaccca gatcgagaac    540
117 tgcgacctcg cgggctcga cgacctcgat cagtcgaacc cggtcgtctc gtcgcacctg      600
118 atgagcacgt acaaggactg ggtcgacatg ggcttcgacg gcatccgggt cgatgcggcg    660
119 cgctcggtgc cgaagccgtg gctcgccgac ttcgaagccg agatgggcgt gccgaccttc    720
120 ggcgaggtgt tcgtcggcga tgtcgactac gtctcggact accaggacta cgagtggggc    780
121 gtgctcgact tcccctactt cttcacggtg cgcgaggcgt tctcggccga taccgacatg    840
122 aacaagctcg cgcacctctt cgaccaggac agcaagtacg cgaacccgaa ccggctggag    900
123 acgttcctcg acaaccacga tcgggcgcgg ttcctcacct gggccgatga caactatcag    960
124 cggctgcgct caggactgac gttcctccta acctcccggg gcgtgcccgt gatctactac   1020
125 ggcaccgagc aggccgacga cggcaacggc aaccccacg aggtaccgat cgcgaacaag    1080
126 gacaaccgca aggacatgga gagcttcgat cagaactcga acctctacaa gcacatccag   1140
127 cggttgaccg cgatcaaggc cgcttacccg gctctgcagg tcggcacaca gcgcgagatg   1200
128 tggtccgaca cctccgtcta cgggttctcg cgacgcgtcg acagcacggg tgccgaggcg   1260
129 atgaccttct cgtcgaactc gtggacgacg cagacgcgca cggtgccgct cgcgcccgag   1320
130 agctcgatca cggtcggtac gacgctgacg aacctcatga acacgggcga cacggtgacc   1380
131 gtgaccgccg gcggtgtcac ggggaagcag atcaccgtct ccctcggcga gcacgagagc   1440
132 aaggtctatg cgcccggcac cccggtatcg gcatacagcc ccgaagcgcg caacaccacg   1500
133 aagatccgcg tgcactacaa cgtgggcctc gggcacagca tcgcgatccg cggcgacgag   1560
134 tacccgttca cctggacctc cggccgaggc gcgcgcaacg tcgcgtccga cgtctgggag   1620
135 ttcgaggtcg agcgcatccc cgacggtgag accttccagt tcaagcctct gatcgacgac   1680
136 gtcacctggt cgaccggcgg caacttcacc gggacgggcg gcgacgtgat cgacatctac   1740
137 cccacccttc                                                          1749
139 <210> SEQ ID NO: 4
140 <211> LENGTH: 9
141 <212> TYPE: PRT
142 <213> ORGANISM: Arthrobacter globiformis
144 <400> SEQUENCE: 4
145 His Ile Gln Arg Leu Thr Ala Ile Lys
146   1               5
148 <210> SEQ ID NO: 5
149 <211> LENGTH: 13
150 <212> TYPE: PRT
151 <213> ORGANISM: Arthrobacter globiformis
153 <400> SEQUENCE: 5
154 Asp Met Glu Ser Phe Asp Gln Asn Ser Asn Leu Tyr Lys
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RAW SEQUENCE LISTING   DATE: 11/30/2006
PATENT APPLICATION: US/10/569,959   TIME: 13:29:16

Input Set : N:\efs\11_30_06\10569959_efs\pto.da.txt
Output Set: N:\CRF4\11302006\J569959.raw

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157 <210> SEQ ID NO: 6
158 <211> LENGTH: 10
159 <212> TYPE: PRT
160 <213> ORGANISM: Arthrobacter globiformis
162 <400> SEQUENCE: 6
163 Leu Gly Asp Leu Phe Asp Gln Asp Ser Lys
164   1              5                   10
166 <210> SEQ ID NO: 7
167 <211> LENGTH: 27
168 <212> TYPE: PRT
169 <213> ORGANISM: Arthrobacter globiformis
171 <400> SEQUENCE: 7
172 Met Ile Leu Asp Val Val Pro Asn His Thr Ala Asp Tyr Leu Ala Gly
173   1              5                   10                  15
174 Thr Ser Thr Thr Tyr Ser Pro Ser Thr Tyr Lys
175              20                  25
177 <210> SEQ ID NO: 8
178 <211> LENGTH: 20
179 <212> TYPE: PRT
180 <213> ORGANISM: Arthrobacter globiformis
182 <400> SEQUENCE: 8
183 Asp Trp Val Asp Met Gly Phe Asp Gly Ile Arg Val Asp Ala Ala Arg
184   1              5                   10                  15
185 Ser Val Pro Lys
186              20
188 <210> SEQ ID NO: 9
189 <211> LENGTH: 30
190 <212> TYPE: PRT
191 <213> ORGANISM: Arthrobacter globiformis
193 <400> SEQUENCE: 9
194 Tyr Ala Asn Pro Asn Arg Leu Glu Thr Phe Leu Asp Asn His Asp Arg
195   1              5                   10                  15
196 Ala Arg Phe Leu Thr Trp Ala Asp Asp Asn Tyr Gln Arg Leu
197              20                  25                  30
199 <210> SEQ ID NO: 10
200 <211> LENGTH: 4467
201 <212> TYPE: DNA
202 <213> ORGANISM: Arthrobacter globiformis
204 <400> SEQUENCE: 10
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206 ctggcgaccg cagccggcga ggcacctctc ctccgcccgg ccgacctcgt ctacctcggc     120
207 gtcgatctcg cgcagacgac ggagggagaa cggtcgcagc gggaggcgct cgggctcgct     180
208 gtcgtcgagc agaacgctct cgtcgccgat cctcggcgag ctgctcggac cgcacgagcc     240
209 cacctcgccc caggaccgtt catcgtgcac ctggacgtcg atgtgctgga cttcctcgac     300
210 gcaccccttg ccgagaacgt gaacggccga aacagcgggc cgaccgtcga gcagctgcgg     360
211 gtcgcactcg ccgagcttct gcagcatccg gactgctggg cgatgtccat cggccaggtg     420
212 gtccccgcgc acgcggcggc cgacccgacc tccatcccgc ggctcatcgg cgccctggcc     480
213 gtgagctcca cgtagccgga cgtcgctcct ggagcggagc cgctccggca ggaacggcgt     540
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214 cgcaccccgt cgagcggggg cgtcgccctc ttcgacgggg tctgcggcgc ggctacccgc      600
215 gcggcagcgt gagccgccac cgaccagatc tcatgcattt ggacgaactt cgccgtccaa      660
216 ttctctccgc gcctcaagca ggtatacatc gctcgaacgc gtcttcactg gcctgacggt      720
217 ccgcgatcac gtcgtgcagt gaagcatcct gccgcgaagg gtcttgatgc gcatgcagta      780
218 cgggagtcga atcactttca cgggcacggc cggtgtcagt acttgacaaa acgcatttat      840
219 acatgttgca tcgatccagt aaaccgtgca gctcgcggac cgatgcgcat ccgacaacga      900
220 agtcaggaga gagtc atg aga acg aca gtt cgt acc gct cgc gtc tcc gcg      951
221                   Met Arg Thr Thr Val Arg Thr Ala Arg Val Ser Ala
222                     1               5               10
224 cgt acg ggc ctc gcg atg gga gca gcc gtc gcg ctg gcg gcc ggc gcg      999
225 Arg Thr Gly Leu Ala Met Gly Ala Ala Val Ala Leu Ala Ala Gly Ala
226         15               20               25
228 ctc acc tgg ggc acc ggc ccc gca ccc gcg agt gcc gac ccc acc acg     1047
229 Leu Thr Trp Gly Thr Gly Pro Ala Pro Ala Ser Ala Asp Pro Thr Thr
230         30               35               40
232 tcg ccc ggc ccg ctg gcc gag ggc gac gtg atc tac cag gtg ctc gtc     1095
233 Ser Pro Gly Pro Leu Ala Glu Gly Asp Val Ile Tyr Gln Val Leu Val
234 45               50               55               60
236 gac cgg ttc gaa gac ggc gac ccc acc aac aac gac cag ggc gac gga     1143
237 Asp Arg Phe Glu Asp Gly Asp Pro Thr Asn Asn Asp Gln Gly Asp Gly
238         65               70               75
240 gag tac gat ccg tcc gac ctc ggt ttc tac cac ggc ggc gac tgg gcg     1191
241 Glu Tyr Asp Pro Ser Asp Leu Gly Phe Tyr His Gly Gly Asp Trp Ala
242         80               85               90
244 ggc ctg acg gac cgg ctc gac tac atc gcc gat ctg ggt gtg acg gcg     1239
245 Gly Leu Thr Asp Arg Leu Asp Tyr Ile Ala Asp Leu Gly Val Thr Ala
246         95               100              105
248 atc tgg ctc tcg ccc gtc tcc gag cag cag ccg ctc tcg cgc gac ggg     1287
249 Ile Trp Leu Ser Pro Val Ser Glu Gln Gln Pro Leu Ser Arg Asp Gly
250         110              115              120
252 ctg gag gcc agc tac cac ggc tac ttc act cgg gac ttc gcg acg ccg     1335
253 Leu Glu Ala Ser Tyr His Gly Tyr Phe Thr Arg Asp Phe Ala Thr Pro
254 125              130              135              140
256 aac gag cat ttc ggc gac cga gcc gag ctg cag gag ctg atc gac acg     1383
257 Asn Glu His Phe Gly Asp Arg Ala Glu Leu Gln Glu Leu Ile Asp Thr
258         145              150              155
260 gcg cac gat ctc gga ctc aag atg atc ctc gac gtc gtg ccg aac cac     1431
261 Ala His Asp Leu Gly Leu Lys Met Ile Leu Asp Val Val Pro Asn His
262         160              165              170
264 acg gcc gac tac ctc gcg ggc aca tcg acg acc tat tcg ccg agc acc     1479
265 Thr Ala Asp Tyr Leu Ala Gly Thr Ser Thr Thr Tyr Ser Pro Ser Thr
266         175              180              185
268 tac aag ccg gcg agt ccg ctc gat gac gcg tcg tac ttc cat cac gcc     1527
269 Tyr Lys Pro Ala Ser Pro Leu Asp Asp Ala Ser Tyr Phe His His Ala
270         190              195              200
272 ggc gac tgc ctg ttc aac ggg ctc gag acg cag acc cag atc gag aac     1575
273 Gly Asp Cys Leu Phe Asn Gly Leu Glu Thr Gln Thr Gln Ile Glu Asn
274 205              210              215              220
276 tgc gac ctc ggc ggg ctc gac gac ctc gat cag tcg aac ccg gtc gtc     1623
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VERIFICATION SUMMARY   DATE: 11/30/2006
PATENT APPLICATION: **US/10/569,959**   TIME: 13:29:17

Input Set : **N:\efs\11_30_06\10569959_efs\pto.da.txt**
Output Set: **N:\CRF4\11302006\J569959.raw**

L:10 M:270 C: Current Application Number differs, Replaced Current Application No
L:10 M:271 C: Current Filing Date differs, Replaced Current Filing Date